USGS
science for a changing world

Mineral Industry Surveys

For information, contact:
Michael J. Magyar, Molybdenum Commodity Specialist
U.S. Geological Survey
989 National Center
Reston, VA 20192
Telephone: (703) 648-4964, Fax: (703) 648-7757
E-mail: mmagyar@usgs.gov

Cindy C. Chen (Data)
Telephone: (703) 648-7991
Fax: (703) 648-7792
E-mail: cchen1@usgs.gov

Internet: http://minerals.usgs.gov/minerals

MOLYBDENUM IN NOVEMBER 2005

Domestic production of molybdenum in concentrate in November 2005 was about 10% less than that of the previous month but was about 15% more than that of November 2004, according to the U.S. Geological Survey. Producer stocks of molybdenum in concentrate, oxide, and other product forms were about 5,930 metric tons (t) at the beginning of 2005 and about 8,120 t at the end of November.

According to Ryan's Notes (2005), the November monthly average prices for U.S. ferromolybdenum (FeMo) ranged from $34.188 to $35.188 per pound of molybdenum content, compared with $36.563 to $37.563 in October. European FeMo monthly averages ranged from $69.250 to $71.250 per kilogram of molybdenum content in November as compared with $76.750 to $78.500 in October. In November, worldwide molybdenum oxide (MoO_3) prices ranged from $30.281 to $31.156 per pound versus $32.188 to $33.125 in October.

Molybdenum supply continued to be constrained in November, even with increased concentrate production, owing to the continued bottleneck of insufficient Western roasting capacity. Surplus molybdenum concentrates exported to China for roasting have not been re-exported to the market owing to strong demand within China, coupled with reduced production from the Huludau Region owing to mine closures. Output of by-product molybdenum was expected to rise in 2006 with the development of a 4,000-metric-ton-per-year project at the Escondida Mine in Chile. In addition, both the Chuquicamata Mine and the Los Pelambres Mine reportedly have changed their mining plans to increase molybdenum production (Metal Bulletin Research, 2005).

Increased production of low-cost byproduct molybdenum from South American copper mines over the next decade could adversely affect development of molybdenum deposits in North America. Because the cost of mining ore is charged against copper in a byproduct mine, byproduct molybdenum production costs are in the $1 to $2 per pound range as compared with $3 to $4 per pound for an operating molybdenum mine where molybdenum is the principal product. Many North American molybdenum deposits that would be profitable at molybdenum prices in the $6 to $8 per pound range won't be developed. Increasing reliance on byproduct molybdenum could lead to greater swings in molybdenum prices in the future as copper production varies according to copper market conditions. Another factor in future molybdenum prices involves action by the Chinese Government. In an effort to restrict small-scale mining operations that don't comply with environmental or health and safety regulations, many small mines in the Huludau Region of China, which accounted for about 20% of Chinese molybdenum production in 2004, have been closed since the spring of 2005. In addition, owing to energy shortages and environmental concerns, Chinese toll roasting of imported molybdenum concentrates will be restricted, further exacerbating the worldwide shortage in roasting capacity (Platts Metals Week, 2005).

Included in this Mineral Industry Surveys are U.S. production and shipments of molybdenum concentrates and materials, U.S. consumption by end use, and stocks of molybdenum material in October and November 2005; also included are trade data for September and October 2005.

References Cited

Metal Bulletin Research, 2005, Molybdenum highlights, Prices easing in November: Metal Bulletin Research, Ferro-alloys Monthly, no. 159, November 24, p. 14.

Platts Metals Week, 2005, Cheap Latin moly leaves little room for new mines: Platts Metals Week, v. 76, no. 45, November 7, p. 10.

Ryan's Notes, 2005, [untitled]: Ryan's Notes, v. 11, no. 49, December 5, p. 10.

TABLE 1
U.S. SALIENT MOLYBDENUM CONCENTRATE STATISTICS[1]

(Metric tons, contained molybdenum)

	2004		2005		
	January-December	January-November	October[r]	November	January-November
Production	41,500	37,800	5,480	4,910	53,200
Shipments:[2]					
Domestic	30,700	27,900	3,550	2,880	35,200
Export	11,200	9,650	1,400	1,790	17,300

[r]Revised.
[1]Data are rounded to no more than three significant digits.
[2]As reported by producers.

TABLE 2
U.S. REPORTED PRODUCTION AND SHIPMENTS OF MOLYBDENUM PRODUCTS[1]

(Metric tons, contained molybdenum)

	2004		2005		
	January-December	January-November	October[r]	November	January-November
Gross production	66,300	59,700	5,140	6,520	73,400
Internal consumption[2]	42,000	37,700	3,170	4,180	46,500
Gross shipments	39,300	35,600	3,760	5,320	44,700

[r]Revised.
[1]Data are rounded to no more than three significant digits.
[2]Includes molybdic oxides, metal powder, ammonium molybdate, sodium molybdate, and other

TABLE 3

U.S. REPORTED CONSUMPTION, BY END USES, AND CONSUMER STOCKS OF MOLYBDENUM MATERIALS[1]

(Kilograms, contained molybdenum)

End use	Molybdic oxides	Ferro molyb-denum[2]	Ammonium and sodium molybdate	Molyb-denum scrap	Other	Total
2005, October:						
Steel:						
Carbon	13,600	W	--	--	W	13,600
High-strength low-alloy	35,200	8,210	--	--	11,300	54,800
Stainless and heat-resisting	158,000	67,700	--	W	6,510	233,000
Full alloy	162,000	205,000	--	--	1,510	369,000
Tool	56,100	W	--	--	--	56,100
Total	425,000	281,000	--	W	19,400	726,000
Cast irons (gray, malleable, and ductile iron)	W	8,590	--	--	763	9,350
Superalloys	80,700 r	W	--	(3)	144,000 r	225,000 r
Alloys: (other than steels, cast irons, and superalloys)						
Welding materials (structural and hard-facing)	--	W	--	--	6	6
Other alloys	136	1,170	--	--	--	1,310
Mill products made from metal powder [4]	--	--	--	--	181,000	181,000
Cemented carbides and related products[5]	--	--	--	--	W	W
Chemical and ceramic uses:						
Pigments	--	--	W	--	--	W
Catalysts	77,300	--	W	--	W	77,300
Other chemicals	--	--	--	--	980 r	980 r
Miscellaneous and unspecified uses:						
Lubricants	--	--	--	--	10,800	10,800
Other	1,090	31,700	73,500	1,840	16,800	125,000
Grand total	584,000 r	322,000	73,500	1,840	374,000 r	1,360,000 r
Stocks, October 31, 2005	479,000 r	215,000	3,540 r	32,700 r	853,000 r	1,580,000 r
2005, November:						
Steel:						
Carbon	15,600	W	--	--	W	15,600
High-strength low-alloy	34,600	8,080	--	--	11,300	54,000
Stainless and heat-resisting	148,000	66,900	--	W	6,510	222,000
Full alloy	161,000	187,000	--	--	1,510	349,000
Tool	56,100	W	--	--	--	56,100
Total	415,000	262,000	--	W	19,400	696,000
Cast irons (gray, malleable, and ductile iron)	W	8,590	--	--	763	9,350
Superalloys	97,500	W	--	(3)	138,000	235,000
Alloys: (other than steels, cast irons, and superalloys)						
Welding materials (structural and hard-facing)	--	W	--	--	6	6
Other alloys	136	2,040	--	--	--	2,170
Mill products made from metal powder [4]	--	--	--	--	179,000	179,000
Cemented carbides and related products[5]	--	--	--	--	W	W
Chemical and ceramic uses:						
Pigments	--	--	W	--	--	W
Catalysts	77,300	--	W	--	W	77,300
Other chemicals	--	--	--	--	740	740
Miscellaneous and unspecified uses:						
Lubricants	--	--	--	--	11,000	11,000
Other	1,090	31,300	73,500	1,840	16,800	124,000
Grand total	591,000	304,000	73,500	1,840	366,000	1,340,000
Stocks, November 30, 2005	424,000	224,000	3,540	22,800	847,000	1,520,000

rRevised. W Withheld to avoid disclosing company proprietary data; included in "Other" of the "Miscellaneous and unspecified uses" category. -- Zero.

[1]Data are rounded to no more than three significant digits; may not add to totals shown.

[2]Includes calcium molybdate.

[3]Included in "Other" of the "Superalloys" category.

[4]Includes ingot, wire, rod, and sheet.

[5]Includes construction, mining, oil and gas, metalworking machinery.

TABLE 4
U.S. EXPORTS OF MOLYBDENUM ORES AND CONCENTRATES
(including roasted concentrate), BY COUNTRY[1]

(Kilograms, contained molybdenum)

	2004		2005		
Country	January-December	January-October	September	October	January-October[2]
Australia	30,500	24,800	--	--	110,000
Austria	1,310,000	1,310,000	--	--	3,230
Belgium	6,470,000	5,550,000	629,000	640,000	7,490,000
Brazil	31,000	25,200	591	--	66,700
Canada	1,370,000	1,180,000	116,000	369,000	3,350,000
Chile	1,380,000	1,380,000	--	--	111,000
China	36,000	36,000	339,000	266,000	4,280,000
Costa Rica	26,700	26,000	--	--	3,810
India	430	430	1,630	630	39,600
Italy	--	--	--	--	35,100
Japan	5,730,000	5,520,000	125,000	155,000	1,750,000
Korea, Republic of	95,200	91,400	--	--	11,400
Mexico	3,910,000	3,210,000	77,000	223,000	2,250,000
Netherlands	14,100,000	12,400,000	985,000	429,000	13,900,000
Sweden	38,200	--	--	--	--
Taiwan	19,200	18,600	--	--	3,600
United Kingdom	8,910,000	7,940,000	525,000	539,000	5,970,000
Other	2,770,000	2,670,000	--	726	754,000
Total	46,200,000	41,400,000	2,800,000	2,620,000	40,100,000

-- Zero.
[1]Data are rounded to no more than three significant digits; may not add to totals shown.
[2]May have been revised.

Source: U.S. Census Bureau.

TABLE 5
U.S. EXPORTS OF FERROMOLYBDENUM, BY COUNTRY[1]

(Kilograms, contained molybdenum)

	2004		2005		
Country	January-December	January-October	September	October	January-October
Australia	1,090	1,090	--	--	--
Austria	--	--	--	11,400	11,400
Brazil	--	--	198	326	17,200
Canada	870,000	735,000	82,300	228,000	1,630,000
France	10,100	--	--	--	--
Indonesia	381	--	--	--	5,930
Mexico	33,700	33,700	25,400	47,300	81,800
Netherlands	--	--	--	--	33,300
Sweden	9,150	--	--	--	--
United Kingdom	491	491	--	--	--
Total	925,000	771,000	108,000	287,000	1,780,000

-- Zero.
[1]Data are rounded to no more than three significant digits; may not add to totals shown.

Source: U.S. Census Bureau.

TABLE 6

U.S. IMPORTS FOR CONSUMPTION OF MOLYBDENUM PRODUCTS[1]

(Kilograms, unless otherwise specified)

	January-December 2004			October 2005			January-October 2005		
Material	Gross weight	Contained molybdenum	Value[2] (thousands)	Gross weight	Contained molybdenum	Value[2] (thousands)	Gross weight	Contained molybdenum	Value[2] (thousands)
Ore and concentrates roasted	7,580,000	4,710,000	$133,000	793,000	498,000	$19,900	7,110,000	4,470,000	$280,000
Ore and concentrates other	9,330,000	4,070,000	135,000	1,020,000	485,000	32,900	11,300,000	5,210,000	363,000
Molybdenum chemicals:									
Oxides and hydroxides	822,000	NA	15,800	95,600	NA	3,790	1,070,000	NA	35,700
Molydates of ammonium	1,940,000	1,330,000	18,400	314,000	187,000	5,970	3,340,000	2,200,000	41,900
Molydates (all others)	254,000	116,000	1,430	13,200	4,160	92	78,700	21,200	1,030
Molybdenum orange	1,030,000	NA	4,760	153,000	NA	532	857,000	NA	4,100
Ferromolybdenum	8,310,000	5,310,000	158,000	395,000	252,000	18,300	5,220,000	3,330,000	233,000
Molybdenum powders	139,000	95,200	4,930	12,600	10,900	936	74,600	61,500	6,470
Molybdenum unwrought	151,000	151,000	3,520	1,240	1,230	75	65,700	65,500	3,840
Molybdenum waste and scrap	454,000	415,000	10,200	49,100	44,000	4,030	430,000	408,000	30,900
Molybdenum wire	20,500	NA	2,010	2,520	NA	245	18,900	NA	2,780
Molybdenum other	132,000	NA	13,700	26,200	NA	2,660	145,000	NA	18,400
Total	30,200,000	16,200,000	501,000	2,880,000	1,480,000	89,500	29,700,000	15,800,000	1,020,000

NA Not available.

[1]Data are rounded to no more than three significant digits; may not add to totals shown.

[2]Customs value.

Source: U.S. Census Bureau.